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guished ability as a teacher and educational administrator.

Dr. Jordan has printed the actual resolution adopted by the trustees, as follows:

It was also on motion, duly made and seconded, resolved that first, the executive committee be instructed to safeguard the interests of the following classes of cases: (a) those who have research work in view and have shown themselves unmistakably fit to pursue it; (b) those whose twenty-five years of service includes service as a college president; and (c) those in whose mind a definite expectation has been created by official action that they will be accorded the benefits of the foundation within the year 1910; and that, secondly, the executive committee be authorized to formulate regulations in accordance with these instructions.

It is difficult to reconcile the statement under (a) with the announcement of the secretary. In the case of (b) one can only reconcile the two versions by assuming that the presidents who make up the board believe that there can be no college president who has not "displayed distinguished ability as a teacher and educational administrator." It is not easy to guess a creditable reason for not having made (c) public, for it would not be honorable to conceal it in order to save the money due to those who might apply under the resolution if it were known to them.

It is certainly odd that a board of trustees consisting of university and college presidents should increase the maximum pension from \$3,000 to \$4,000, which can practically only be of advantage to the comparatively highly-salaried president, and should retain the privilege of retiring after twenty-five years, when this is denied to the professors through the financial inability of the foundation. But perhaps they assume that higher education can be best advanced by retiring the president whenever possible.

The lack of foresight and expert knowledge displayed by the president and trustees of the foundation is truly astounding. Mr. Carnegie wrote in his original letter to the trustees:

I have, therefore, transferred to you and your successors, as trustees, \$10,000,000, 5 per cent.

first mortgage bonds of the United States Steel Corporation, the revenue from which is to provide retiring pensions for the teachers of universities, colleges and technical schools in our country, Canada and Newfoundland under such conditions as you may adopt from time to time. Expert calculation shows that the revenue will be ample for the purpose.

In making his additional gift for tax-supported institutions, he wrote to the president:

I understand from you that if all the state universities should apply and be admitted, five millions more of five per cent. bonds would be required.

As a matter of fact, a million dollars will not support an adequate pension fund in a single large university—Yale already draws \$35,000 a year—and if the state universities continue to develop, as at present, and retirement at sixty-five is made obligatory, five million dollars will not permanently suffice for a single university.

The increase in the appropriations of the foundation for pensions this year is \$162,815, and the total appropriation for pensions is \$466,320. The total income of the foundation last year was \$544,355, and the administrative expenses were \$53,584.85. After Mr. Carnegie gives the additional five million dollars, the income will soon be exhausted, even though one of the two objects of the foundation, as stated in the act of incorporation, may be abandoned.

J. McKEEN CATTELL

SCIENTIFIC BOOKS

Food Inspection and Analysis: For the Use of Public Analysts, Health Officers, Sanitary Chemists and Food Economists. By ALBERT E. LEACH, S.B., Chief of the Denver Food and Drug Inspection Laboratory, Bureau of Chemistry, U. S. Department of Agriculture, formerly Chief Analyst of the Massachusetts State Board of Health. Second edition, revised and enlarged. Cloth, 6½ × 9½, pp. 954, Fig. 120; Pl. XL. New York, John Wiley & Sons; London, Chapman & Hall, Limited. 1909.

In 1904 the first edition of this book was published, and speedily found acceptance be-

cause of its high values for the purposes for which it was declaredly written. It is not, and does not pretend to be, a student's manual, a cyclopedia of its subject, a manual of the physiology nor of the technology of food. It is rather a compilation of the facts and methods that one of America's most experienced food analysts has found useful in his work and which he has thought might be helpful to others charged with similar responsibilities and encountering like problems. The merit of the work lies particularly in the fact that the compiler is recognized as a man of fair judgment and a critical analyst, who, from long experience, has come fully to realize, on the one hand, the facts that must be ascertained by analysis and the importance of the issues involved, and, on the other hand, the imperative need for the choice of methods capable of yielding safe results within a reasonable time and at such a cost as will make possible the performance of many similar analyses at moderate cost.

Since the publication of the first edition, many changes have arisen in the field covered by the book. The national food and drugs bill and the meat inspection bill of 1906 have become laws, and a large number of the states have established food controls. The number of chemists engaged in the work of food inspection has greatly increased. Under the leadership of the Association of Official Agricultural Chemists, new and improved methods have been devised. From 1903 to 1906, under authorization of congress, the Secretary of Agriculture has proclaimed standards for a large number of the staple foods, and, since the expiration of the specific authorization under which these standards were proclaimed, the Association of Official Agricultural Chemists and the Association of State and National Food and Dairy Departments, comprising in their membership all who are officially charged with the execution of the food laws of America and Canada, have formulated for the guidance of these officials and for public information, additional standards for other staple foods not represented in the proclamations of the Secretary of Agriculture. In the enforcement of the national law, many im-

portant regulations have been published. Meanwhile, investigations at home and abroad have developed many facts of importance in their bearing upon the subject, and those manufacturers of foods who have been induced by hope of gain or from sheer joy in the exercise of skill, to attempt to evade the meshes of the law, have resorted to new devices that have required detection and suppression where they were against the public interest.

After all these changes, any book published five years ago upon the subject of food inspection and analysis, is old. The food analysts of America have reason, therefore, for pleasure in the fact that Mr. Leach has undertaken the heavy labor of revising his book and of critically selecting the new matter required to bring it up to date; and also in the fact that, his own strength proving insufficient at present for the task, he has associated with him in the revision, Dr. Winton, formerly chemist of the Connecticut Agricultural Experiment Station and now chief of the Chicago Laboratory of the Bureau of Chemistry, a man of like skill and experience with himself, in whose judgment the food chemists of America have with reason come to trust.

The new edition is one fifth larger than the old. In its illustrations the changes are not numerous, but the condensation of old cuts has left room for the addition of a number of new figures of value, and several of the less representative cuts illustrating the histology of the cereals have been replaced by others based upon Dr. Winton's own excellent drawings. The increase in the size of the book is not due to the insertion of new chapters, although two new chapters upon the refractometer and upon flavoring extracts have been formed, in part from matter scattered through the body of the first edition and in part from new material. Nearly every page shows some paragraph improved by change of form or by addition of new matter. These changes are so numerous that space will permit the mention of no more than a few typical examples, such as the modern classification of nitrogenous constituents prepared for the book by Dr. Osborne, the more recent adaptations of

the immersion refractometer to food analysis, methods for the detection of viscogen in cream, Howard's methods for the analysis of ice cream, Robinson's methods for sausage analysis, Bigelow's work on meat extracts, methods for the detection of cold storage eggs, the more recent, simple methods for the determination of moisture in butter, Penfield's system of ash analysis, Bryan's work on starch in compressed yeast, the new sections on bleached flour, diabetic foods, prepared mustard, the Polenske number, methods of analysis for maple products, scientific standards of the International Congress of Sugar Chemists, on Neufeld's, Browne's and Van Dine's studies of honey, on Vasey's and Crampton and Tolman's studies of whiskey, besides the large amount of new matter in the pages upon flavoring extracts, the incorporation of the gist of the new official methods, of the more important food standards, and of the substance of the decisive national regulations. There are, of course, omissions of much that every analyst engaged in this work would be glad to have clearly stated and bound within the same covers; but even a thousand pages have their limits of content, and the matter for congratulation is that the revisers have chosen so well.

The temper of the book is worthy of note. Food adulterations and adulterants have, in these days, become the subject of discussions almost as warm as the importance of the matter merits, and the doctors as well as the writers of the press and laymen have been heard therein. But few echoes of these discussions appear in this book; dialectics have been avoided and mooted matters little discussed.

In a work of such magnitude, matter for criticism can always be found. One wonders why, for example, no mention is made of Horne's dry subacetate for clarification of saccharin liquids, that the Gutzeit method for the determination of arsenic is not presented in the principal section upon that subject, and that Kastle's excellent method for the identification of saccharin receives no mention.

It is deserving of more serious criticism

that the official methods and standards are but partially stated, or are given in a modified form, without clear warning in the prefatory matter that for the full and exact statement of these methods and standards reference must be had to the corresponding official publications. The occasional note of departure from the letter of the text on these subjects is insufficient to acquaint the reader unfamiliar with the original texts of the extent and nature of the departures which the limitations of space and probably other excellent reasons have induced.

Deserving also of mention is the fact that this manual deals only with one side of the public analyst's work, and does not attempt the treatment of the forensic phase of his duties. Indeed, from one or two paragraphs in the general chapter of introduction, it may be inferred that the food analyst of America is unlikely to be called upon for very serious or complex work of the forensic character. Thus, in the first edition, the author notes that Massachusetts' experience had indicated that there was little need for the services of trained attorneys in the ordinary course of the enforcement of the food laws, since the trials involved hearings only before courts of magisterial grade where the services of a skilled inspector had proved more valuable than those of trained lawyers without special experience in the kind of causes at issue. In the second edition, this statement is modified to indicate that where the laws are new, the assistance of counsel may be needful.

The experience of the reviewer has compelled him to a very different judgment upon this point. Under present conditions, the real issue joined is not whether the small retailer in a single locality has violated the law and subjected himself to a moderate fine, but whether a given brand or even a given class of goods can safely be handled by any retailer in a large commonwealth. With relative frequency, therefore, food cases are tried in the higher courts with a large array of experts and counsel engaged on behalf of the real defendant, the manufacturer or group of manufacturers concerned; and every point, from the framing of the indictment and the

admissibility of evidence up to the constitutionality of the act is vigorously and skilfully contested on the defendant's behalf. The stress of the contest and the progress of the pure-food movement are such, moreover, that nearly every session of the legislature witnesses some change in the letter of the law that anew requires judicial construction; while decisions on established phraseology are being handed down by the bench in every commonwealth and by the federal courts. Furthermore, where the laws have assumed the civil form, the losses of cases arising from the unskilful preparation of the original records in the magistrates' courts and from the imperfect transcription of these records, have been sufficiently serious to warrant the employment of skilled legal assistance in even the first stages of the prosecution.

There is need therefore not only for legal aid of a high order, but also for the services of lawyers who have given special attention to food laws, the decisions relative thereto, and the general nature of the evidence they must elicit for the proper conduct of their cases. The public analyst should never be made to appear as the prosecutor, but should always be protected from the appearance, as well as the reality of such an attitude. His duty is that of the impartial judge within his own peculiar sphere, not that of the attorney.

For the reasons just set forth for the employment of skilled counsel in the service of food controls, it is likewise clear that the public analyst requires, if he is to be fitted for the highest usefulness in his sphere, special preparation for his forensic duties. It is to be hoped that on this side of his work, some manual will soon be written that shall have in that respect the same high degree of excellence that Mr. Leach's book exhibits on the laboratory side.

WM. FREAR

STATE COLLEGE, PA.,
February 8, 1910

SCIENTIFIC JOURNALS AND ARTICLES

The Journal of Pharmacology and Experimental Therapeutics, Vol. 1, No. 3, issued Oc-

tober, 1909, contains the following: "Experimental Criticism of Recent Results in Testing Adrenalin," by W. H. Schultz. The dilation time is a better index of the relative physiological activity of two adrenalin solutions than is the degree of mydriasis. "On the Relation between the Toxicity and Chemical Constitution of a Number of Derivatives of Choline," by Reid Hunt and R. deM. Taveau. Choline has been found widely distributed in plants and animals, but its function in the organism is yet unsolved. These authors point out that 0.00000001 gram acetyl choline will cause a fall in blood pressure and is only slightly toxic, so that its possibility in therapeutics, perhaps as a substitute for the nitrites, is suggested. "The Action of Adrenalin on the Pulmonary Vessels," by C. J. Wiggers. The difficulties in solving the problem are brought out. "A Clinical Study of Crystalline Strophanthin," by H. C. Bailey. Crystalline strophanthin is a valuable cardiac stimulant in broken compensation due to chronic interstitial nephritis or valvular heart disease. It should not be repeated in twenty-four hours. "The Life-saving Action of Physostigmin in Poisoning by Magnesium Salts," by Don R. Joseph and S. J. Meltzer. Physostigmin is capable of efficiently antagonizing some of the toxic actions of magnesium salts. This is mainly by its action on the respiration. "Note on the Amanita-Toxin," by W. W. Ford and I. H. Prouty.

Number 4 of the same journal issued January, 1910, contains the following articles: "Action of Urea and of Hypertonic Solutions on the Heart and Circulation," by J. A. E. Eyster and A. G. Wilde. In the mammal there is no striking difference evident and the effects of sodium chloride and glucose would seem to be approximately equal to those produced by a solution of urea of equal concentration. "The Inhibitory Action of Phenol on Absorption," by T. Sollmann, P. J. Hanzlik and J. D. Pilcher. Phenol checks intestinal absorption. This is proportionate to the amount of phenol absorbed. "On the Toxicity of Dextro-, Lævo- and Inactive Camphor," by W. E. Grove. The dextro- and lævo-rotatory